

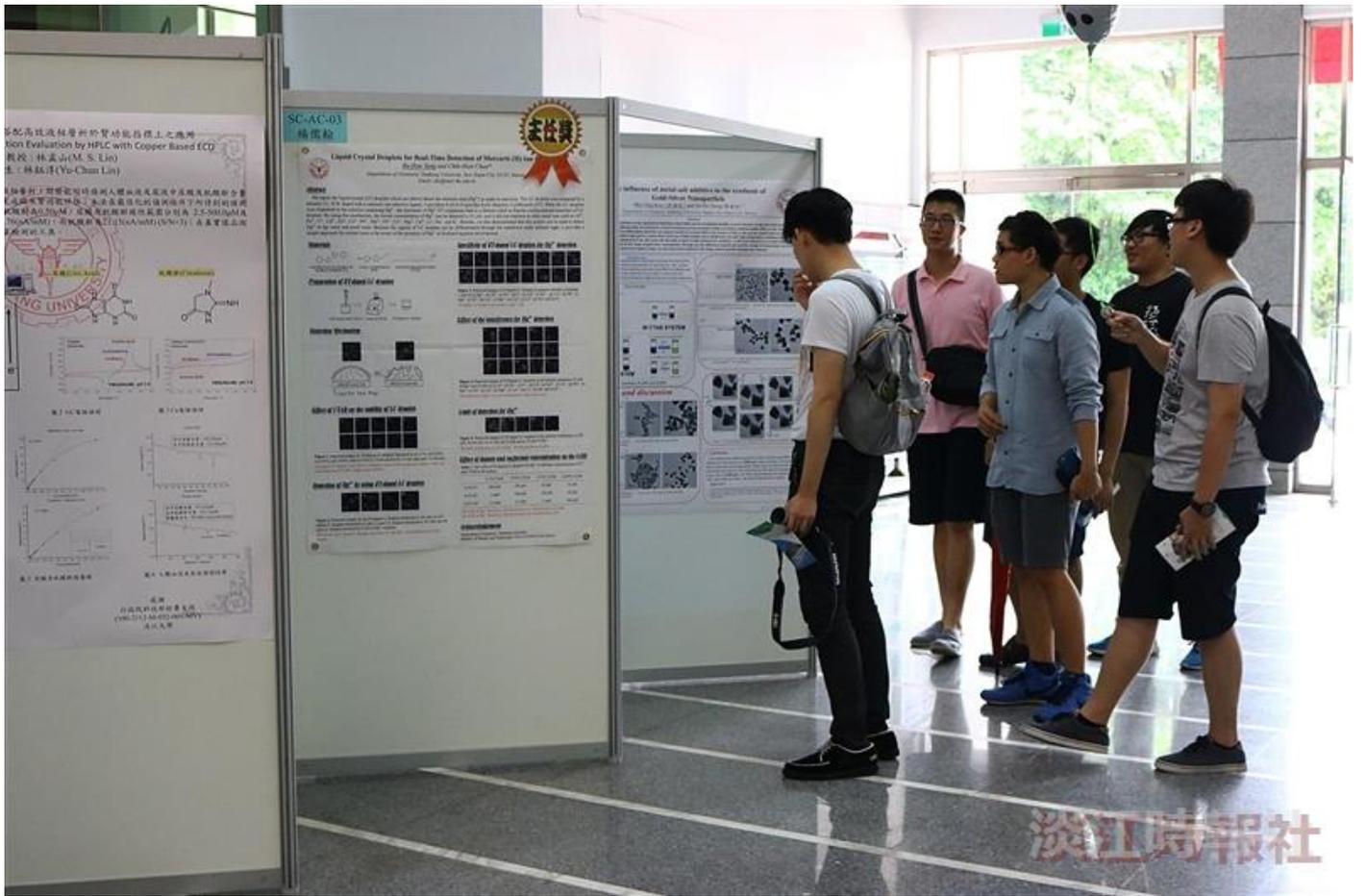
理學院49生論文展

學習新視界

【記者張力□淡水校園報導】理學院於4日、5日在騶先紀念科學館舉辦畢業論文展，共計49篇學生論文展出。本展亦評選優秀作品，並頒發8名院長獎和5名主任獎，現場另有理學院校友成立的人才媒合平臺PARASHOOT，幫助畢業生迎向未來職場。

論文評審之一、化學系副教授吳俊弘說，「此次化學系學生畢報展的論文表現都還不錯，我們3位老師評分的差距很小，但因為參賽另需以英文發表，所以參加學生不足一半。」吳俊弘鼓勵大家，好好把握訓練英語口說和簡報的舞臺。

榮獲主任獎的化學碩二張元曄，以「Copper-Catalyzed Annulation: A Method for the Systematic Synthesis of Phenanthridinium Bromide」為題，認為論文展除了讓學生得以展現學習成果之外，更可以達到激勵的效益。



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林德發

Liquid Crystal Displays for Multi-Class Detection of Mestranolone
By: Lin, Jing and Chih-Huei Tsai
Department of Chemistry, National Tsing Hua University, Hsinchu, Taiwan, R.O.C.
E-mail: jtsai@chem.nthu.edu.tw

Abstract
Mestranolone (M) is a synthetic anabolic steroid which is commonly abused by athletes. The detection of M in urine samples is a challenging task due to its low concentration and the presence of many interfering substances. In this study, we developed a novel method for the detection of M in urine samples using liquid crystal displays (LCDs) coupled with a multi-class detection system. The LCDs were functionalized with a copper-based complex that selectively binds to M, resulting in a color change that can be detected by a CCD camera. The method was validated using a series of urine samples spiked with M at different concentrations. The results showed that the method is highly sensitive and selective, with a detection limit of 10 ng/mL. The method was also applied to the detection of M in real urine samples, and the results were compared with those obtained by HPLC. The results showed that the LCD method is a simple, rapid, and cost-effective method for the detection of M in urine samples.

Keywords
Liquid crystal displays, Mestranolone, Multi-class detection, Copper-based complex, CCD camera.

Chemical Structure of Mestranolone

Figure 1
Schematic diagram of the detection system. The LCD is functionalized with a copper-based complex that selectively binds to M, resulting in a color change that can be detected by a CCD camera.

Table 1
Detection limit of Mestranolone (M) in urine samples using the LCD method.

Sample	Detection Limit (ng/mL)
Urine sample 1	10
Urine sample 2	10
Urine sample 3	10
Urine sample 4	10
Urine sample 5	10

Figure 2
Chromatograms of Mestranolone (M) in urine samples detected by HPLC and the LCD method.

Figure 3
Chemical structure of the copper-based complex used for the detection of Mestranolone (M).

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